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10/597,903

08/11/2006

Thomas William Beck

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SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
170 WOOD AVENUE SOUTH
ISELIN, NJ 08830

EXAMINER

SHABMAN, MARK A

ART UNIT

PAPER NUMBER

2856

MAIL DATE

DELIVERY MODE

01/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/597,903

Applicant(s)

BECK ET AL.

Examiner

Mark Shabman

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 16 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/21/07
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 12 is rejected under 35 U.S.C. 102(e) as being anticipated by Bartels US PGPub 2003/0150807 A1 (hereinafter referred to as Bartels).

Regarding **claim 12**, Bartels discloses a method of improving filtration performance of hollow fiber membranes including steps for backwashing the membrane. Paragraph [0005] of Bartels discloses “immersing the membrane in a liquid suspension and performing filtration of the liquid suspension through a wall of the membrane”, while paragraph [0048] describes “applying a gas at a pressure below bubble point to the liquid permeate” within the lumen to backwash the system as claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Selbie US Patent 6,202,475 (hereinafter referred to as Selbie) in view of Bartels.

Regarding **claim 5**, Selbie discloses a method of determining flow rate through a membrane and testing the integrity of the membrane via a pressure decay method. A preferred method of performing the test consists of wetting a membrane, applying a gas to one side of the membrane below bubble point of the pores and measuring the gas flow across the membrane with a pressure decay measurement (column 1 lines 49-61). The method is further described in column 3 lines 8-16 as pressurizing the lumens to a test pressure while keeping the feed-side full ("allowing a gas pressure in the lumen of the membrane to increase to a predetermined level above a pressure on another side of the membrane"), sealing the filtrate side ("isolating the lumen of the membrane"), and monitoring the drop in pressure. Since the pressure decay is related directly to the membrane integrity, it would need to be compared "against a predetermined value" to decide if the membrane integrity is acceptable. Selbie does not disclose specifically a method of backwashing the membrane as claimed.

Bartels discloses a method for improving filtration performance of hollow fiber membranes comprising backwashing procedures. Figure 9 and paragraph [0048] describe a method of backwashing by introducing a gas pressure below the bubble point on the lumen side of the membrane. Since the method of Selbie also mentions applying gas pressure below bubble point to one side of a membrane (in this case the

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lumen side), it would have been obvious to one of ordinary skill in the art at the time of invention to use this step in a similar manner as disclosed by Bartels to backwash the system as well while measuring the integrity of the membrane within to keep the membrane free of fouling components, therefore lengthening its lifetime.

Regarding **claim 2**, by combining the teachings of Selbie with those of Bartels, the backwashing and integrity testing would be linked and thus the integrity test could be performed during every backwash if desired.

Regarding **claim 3**, by combining the teachings of Selbie with those of Bartels, the backwashing and integrity testing would be linked and thus the integrity test could be performed after any number of backwashes desired.

Regarding **claim 4**, Selbie discloses a method of calculating the logarithmic reduction values (LRV) for a filtration system. Selbie does not specifically disclose calculating a LRV of 4, however since the LRV corresponds to a value based on the reduction of particles in the fluid, a value of 4 would reduce the concentration of an influent by 99.99%. Therefore, the LRV could be calculated based on the desired maximum allowed concentration of the effluent and could be 3 if a less filtered solution was acceptable or 5 if a more filtered solution was needed.

Regarding **claim 6**, the backwashing methods disclosed in Bartels are all typically described as taking a minimum of between 1-5 seconds. Since the integrity test method of Selbie is essentially the same as the claimed invention, the addition of time due to backwashing would be within the claimed 30 seconds to one minute.

Regarding **claim 7**, the backwashing methods disclosed in Bartels are all typically described as taking a minimum of between 1-5 seconds. Since the integrity test method of Selbie is essentially the same as the claimed invention, the addition of time due to backwashing would be within the claimed five to ten seconds.

Regarding **claim 8**, backwashing and integrity testing in a system implies the filter is to be reused, thus the process of filtration would recommence once the backwashing and integrity test is complete. The method of raising a pressure on the exterior of a membrane to pass the liquid suspension through and into the lumen is known in the art and is described in paragraph [0005] of Bartels as well.

Regarding **claim 9**, Selbie discloses a method of determining flow rate through a membrane and testing the integrity of the membrane via a pressure decay method. A preferred method of performing the test consists of wetting a membrane, applying a gas to one side of the membrane below bubble point of the pores and measuring the gas flow across the membrane with a pressure decay measurement (column 1 lines 49-61). The method is further described in column 3 lines 8-16 as pressurizing the lumens to a test pressure while keeping the feed-side full, sealing the filtrate side, and monitoring the drop in pressure (rate of gas pressure decay). Since the pressure decay is related directly to the membrane integrity, it would need to be compared "against a predetermined value" to decide if the membrane integrity is acceptable. Selbie does not disclose specifically a method of backwashing the membrane as claimed.

Bartels discloses a method for improving filtration performance of hollow fiber membranes comprising backwashing procedures. Figure 9 and paragraph [0048] describe a method of backwashing by introducing a gas pressure below the bubble point on the lumen side of the membrane. Since the method of Selbie also mentions applying gas pressure below bubble point to one side of a membrane (in this case the lumen side), it would have been obvious to one of ordinary skill in the art at the time of invention to use this step in a similar manner as disclosed by Bartels to backwash the system as well while measuring the integrity of the membrane within to keep the membrane free of fouling components, therefore lengthening its lifetime.

Regarding **claim 10**, the method of Selbie is described in column 3 lines 8-16 as pressurizing the lumens to a test pressure while keeping the feed-side full, thus reading on "allowing a gas pressure in the lumen of the membrane to increase to a predetermined level above a pressure on the external wall" as the external wall would be the outside of the lumen,

Regarding **claim 11**, the method as disclosed by Selbie in view of Bartels allows for the backwashing to occur as the pressure is introduced into the lumen, thus the increase to the predetermined level as claimed, occurs after the step of backwashing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Shabman whose telephone number is (571) 270-


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3263. The examiner can normally be reached on M-F 7:30am - 5:00pm, EST
(Alternating Fridays Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MAS


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